Introduction to rec.models.rockets and this FAQ

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Rec.models.rockets (r.m.r) is a Usenet newsgroup created for discussions and topics related to model and high-power rocketry. The purpose of this newsgroup is for the exchange of information between anyone wanting to build, fly, or use model rockets or high power rockets. These are viable alternatives to amateur rocketry. The term "model rocket" is defined based on non-metalic structural components, weight, propellant and total impulse restrictions, electrical ignition, recovery devices, and factory-made, solid propellant engines. The term "High power rocket" refers to any rocket using model rocket technology (as described above) except without the weight, propellant, and total impulse restrictions of model rocketry. Amateur rocketry, pyrotechnics, rocket motor-making, and "EX" rocketry are related topics that fall outside of the scope of this newsgroup.

This FAQ (list of Frequently Asked Questions) is an attempt to compile a number of questions and suggestions that have been repeatedly posted to r.m.r into a single, quickly readable document. This document was NOT meant to be a 'how to' on any form of non-professional rocketry It's hoped that it might be of use in answering some of the more commonly asked questions, summarizing some good tips and suggestions, and directing the reader to other documents, books, sources, etc., where more information may be found. The FAQ has evolved into something monstrous (and very informative). For this reason, only this introduction and the first three sections of the FAQ will be posted biweekly. The entire FAQ will make its appearance on r.m.r. monthly.

This FAQ is organized as a list of primary topics (see the Table of Contents below) with a number of questions and answers under each. The majority of this document deals with, but is not limited to, consumer rocketry in the United States and Canada.

This entire FAQ is available on the web.
HTML version of the entire FAQ:
http://www.ninfinger.org/rockets/rmrfaq.toc.html

Most recently posted version of the FAQ:
http://www.faqs.org/

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Posting Frequency

The entire FAQ is posted to rec.models.rockets every month. A shorter version comprised of this Introduction and Sections #1, #2, and #3 are posted every two weeks or so.

Acknowledgements

This document was originally compiled (with help from many others) by Buzz McDermott and Jack Hagerty. This document is now maintained and edited by Wolfram v.Kiparski with help from others. This FAQ would not be possible without the constant flow of tips, suggestions, and sound advice from the readership of rec.models.rockets. Comments, corrections and suggestions for additions are welcomed and encouraged. Please send your suggestions to:

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***** PLEASE READ THE FOLLOWING *****

Many of the tips and suggestions included in this FAQ include references to particular companies and/or products. Opinions expressed are those of the submitters. Several submitters have asked that readers do not request the company names and addresses from them. PLEASE refer to Part 2 of the FAQ or a recent issue of one of the rocketry magazines. Check this FAQ first.

Table of Contents

Part 1: General Information

1. What, exactly, is a 'model rocket' versus a 'high power' rocket? Where do liquid fueled and homemade rocket motors fit in? What about amateur rockets?
2. NFPA, FAA, DOT, ... Who are all these organizations and how do they affect the rocketry hobby?
3. What is the current legal status of model and high power rocketry in the U.S.?

4. I would like to get into Large Model Rockets. What are my options? Who has NAR certified E, F and G motors today?
5. Is the proper term rocket 'engine' or rocket 'motor'?
6. What do the letters and numbers on a model rocket motor mean?
7. What is a CATO? Is it CATO pronounced KAY-TO or CAT-O?
8. When a consumer rocket motor fails (i.e., CATOs) does it explode or detonate?
9. Why don't I just make my own model rocket motors? Shouldn't I be able to custom-make better, more powerful motors at a cheaper price?

Part 2: Names and Addresses

1. National rocketry organizations
2. Rocketry manufacturers and suppliers
    1. Model and High Power Rocket Manufacturers kits/motors/supplies/etc.
    2. Electronics/Recovery Systems/Other Rocketry Components and Supplies
    3. Miscellaneous suppliers of raw materials, supplies, and equipment
    4. Mail Order Vendors
    5. Sources for Out-of-Production Model Rocket Kits
    6. Books/Videos/Computer Software/Technical References
    7. International (outside U.S.A.) rocketry sources
3. Rocketry books
4. Rocketry magazines

Part 3: Rocketry on the Internet

1. How do I get to the r.m.r archive site?
2. What is available from the r.m.r archive?
3. How do I upload files to the r.m.r. archive?
4. I have read-only access to r.m.r. Is there any way I can still post articles to the newsgroup?
5. What are some neat rocketry web pages to check out?

Part 4: Born-Again Rocketeers

1. What the heck is a BAR, 'Born Again Rocketeer'?
2. I have been out of model rockets for many (i.e. +) years now. What's been happening in the hobby over the past couple of decades? What's new? What's gone?
    1. Who's Left, Who's Not & Who's New
    2. Changes in Motor Technology
    3. Competition
    4. High Power Rocketry
    5. Electronics Advancements
    6. Regulations, Regulations, Regulations
3. Are my old rocket kits worth anything today?
4. Where can I find plans of old kits?

Part 5: Model Rocketry

1. Can I legally fly model rockets in my state? What are the restrictions?
2. When do I need to notify the FAA before flying a large model rocket?
3. I have a son/daughter that is (less than 9) years old. Is this too young for model rocketry? If not, are there any tips for helping to keep their interest in the hobby?
4. Is there any way I can buy model rocket kits, parts and engines at less than full retail?
5. I've had a large number of motors CATO recently. The engines are only about 2 years old. I've had them stored in my (attic/garage/basement).
6. Is it safe to use my old rocket engines from <nn> years ago?
7. What's a good way to find other rocket enthusiasts in my area? How can I found out about local rocket clubs?
8. Are the Aerotech composite motors the same size as Estes/MRC/Quest motors?
9. Can I use Aerotech or other composite motors in my Estes rockets?
10. Will my Estes launch system work with Aerotech composite motors?
11. Can I use Aerotech composite motors as boosters in my multi-stage rockets?
12. How can I tell the age of my Estes motors?
13. Are reloadable model rocket motors shippable the same as disposable model rocket motors?
14. My flying field is so small I keep losing my rockets. What can I do?
15. Are Jetex engines still available? Where can I get them?
16. BT-20, BT-50, BT-55. What the heck do the numbers mean on Estes body tubes? Is their any special meaning in these numbers?
17. I've seen mention of all kinds of rocket motor types and sizes. Could you give a brief history and summary of the main marketing names for model rocket motors?
18. Why don't I just make my own model rocket motors? Shouldn't I be able to custom-make better, more powerful motors at a cheaper price?

Part 6: Model Rocket Construction and Finishing Tips

1. Cutting, Sealing, Attaching Fins
2. Body Tubes (Cutting, Joining, Filling)
3. I'm fed up with tangled plastic parachutes with broken shroud lines. How can I improve on the standard chutes, or make my own?
4. Alternatives to Recovery Wadding
5. Are there any good tips when making my own nose cones?
6. Getting Paint to Stick to LOC and Aerotech Nose Cones
7. Is it possible to get a high gloss, durable finish on a model rocket?
8. Are there any good paints for silver details on scale models?
9. How can I prevent a rocket painted white from yellowing?
10. Which is better, white or yellow glue? Epoxy? Cyano?
11. Improving on the Estes Shock Cord Mount
12. I've built several BT-80 based models. How can I strengthen future models to take larger motors, such as Aerotech 24mm or 29mm reloads?
13. How can I prevent balsa fins from breaking off on landing (especially for models with swept fins)?
14. I just lost my favorite rocket and the kit is discontinued. How can I make another one just like it?
15. How can I reduce damage to the booster stage of two stage models caused by the engine exhaust of the second stage?
16. Is there a way to increase the stability of nearly finless models?
17. How can I build a rocket with less wind resistance?

Part 7: Scale Modeling

1. I would like to make a scale model of the <??> rocket. Where do I start looking for technical data, dimensions, flight substantiation data, etc.?
2. What are some specific sources for general scale data?
3. I've never built any scale models. Are there any recommended kits for first timers?
4. What other scale/sport scale kits are available? I'd like to build another kit or two before tackling a scratch scale project.
5. O.K., I've done all my research, collected all the data I can. I've even built a couple of scale kits a a warm up. Now I'm ready to build a model I can be proud of. How do I...?
6. What tools do I need?
7. Where can I get more information on modeling techniques?
8. Got any tips for generating scale plans from original dimensions?

Part 8: Boost Gliders and Rocket Gliders

1. R/C Rocket Gliders
    1. Have there been any construction reviews of R/C rocket gliders?
    2. I'm building the 'XXX' R/C Rocket Glider and it uses foam core wings. Are there any things I should know about working with foam?
    3. Any tips for sheeting the wings on my Aerotech Phoenix?
    4. How about help with my Estes Astroblaster wings?
    5. How do you repair damaged foam wings?
    6. Some more uses of foam in rocketry...
    7. I need to cut the piano wire control rods. Bolt cutters don't work well, as the metal is too hard. Any ideas?
2. Free Flight Boost and Rocket Gliders
    1. What is the difference between a Boost/Glider and a Rocket/Glider?
    2. What are some types of gliders?
    3. What are all these funny names I see referenced?
    4. I'm just starting. What kits or plans are available?
    5. Why do most gliders have the rudder under the fuselage?
    6. These things are very different from what I've built before. Are there any tips for building them?
    7. [How] Should I paint my glider?
    8. Can I convert a hand launched glider (HLG) to rocket power?
        1. How do I attach a pop pod to a glider?
    9. I'd like to design my own glider. How do I know if it will work? How do I compute the CP for a glider?
    10. What motor should I use to fly my glider?
    11. This thing looks weird sitting on the pad. How do I launch a glider?
    12. My glider looped and crashed into the ground. What is wrong?
        1. How do I get the Estes Tomcat to glide?
    13. My glider shredded. What is wrong?
        1. How to tissue a glider
    14. The pod stuck on my boost/glider and the thing crashed. What is wrong?
    15. My glider glides like the space shuttle (or worse). What is wrong?
        1. How do I trim a Flexie?
    16. My glider never came down and flew away. What is wrong?
        1. So how do I find a thermal?

17. Glossary
18. References: (kits, books, publications, catalogs)

Part 9: Competition and Records

1. Are there any manufacturers making kits specifically designed for competition?
2. What are the major categories of competition model rocketry?
3. Strategy & Tactics - What are some good events to try when first getting into competition? Any 'sage' advice?
    1. Getting Jump Started
    2. What is a 'piston' launcher? Does it really help?
    3. Wire Loops
    4. Pop Lugs - A CMR pop lug described
    5. Flying naked
    6. Regarding streamers
    7. Super Roc Duration
    8. Flex wings
    9. Tracking powder
    10. Packing large chutes
    11. Tandems
    12. Helicopter design
    13. Optimal thrust
4. Aside from hanging around 'old timers', how can I learn more about competition strategies and techniques without re-inventing the wheel many times over?
5. Tripoli Altitude Records
6. NAR Competition Records
7. Some Unofficial High Power Altitude Attempts
8. Biggest Non-metallic Rocket Flights
9. Other Non-professional Flights of Note
10. Some other highest verified altitudes
11. The Best of the BMWQF
12. Do's and Don'ts

Part 10: High Power Rocketry

1. I'm a successful model rocketeer. What do I need to get into HPR?
2. What are the major differences between model and high power rockets, besides size and engines? Are they built differently?
3. How do I get high power certified?
4. What is a 'reloadable' motor. Are they worth the price? Are they legal?
5. What are these different 'types' of composite motors I hear about (White Lightning, Black Jack, Smokey Sam, etc.)?
6. What's an FAA waiver? Which rocket flights require one? This section includes the relevant parts of FAR 101.
7. OK. I want to fly some high power rockets. How do I get an FAA waiver?
8. Is high power rocketry legal in every state, if the proper forms are obtained?
9. Where do I find out the proper way to use HPR rockets and motors? I'm familiar with the NAR Model Rocketry Sporting Code. Is there an HPR equivalent?

10. What are some good kits to build when first getting into high power rocketry (assuming I have all of the basic model rocketry skills)?
11. When is a Federal Low Explosives Permit required?
12. How do I get an LEUP? Are there any requirements?
13. How is thermalite affected by the ATF regulatory enforcement?
14. How can I get the Orange Book (explaining the ATF explosive laws and regulations) and the proper LEUP forms?
15. Just what is a 'hybrid' rocket motor? Who makes them?

Part 11: High Power Construction and Finishing Tips

1. Do you have any tips for cutting and sealing fins used on HPR rockets?
2. How do you keep a high power motor in its mount, but still allow for the numerous lengths in which HPR motors are sold?
3. Custom Decals for High Power Rockets
4. I've had several rocket body tubes ruined by the shock cord tearing into the body tube at ejection and making long slits. How can I prevent this?
5. Estes 'toilet paper' recovery wadding strikes me as a bit wrong for HPR rockets. What are some alternatives?
6. What are the differences between the various HPR body tube materials used by the 'major' HPR manufacturers?
7. How can I strengthen my thick paper (i.e., LOC type) body tubes?
8. Is there any way to retrofit my existing rockets to have some type of positive retention system?
9. All these high power motors are different sizes. How do I hold them in? What do I use for a motor block and where should I put it?

Part 12: Ignition and Launch System Tips

1. Copperhead, squib, electric match, thermalite, flash bulb. What are all these types of igniters, how much current do they require, and when are they used?
2. How do those 'Copperhead' igniters work? They only have one wire?
3. I've heard that Copperhead igniters are 'unreliable' for igniting HPR motors. Is that true?
4. Do you have any specific suggestions or tips for an ignition power sources? Can I use my old Estes ignition system with composite models?
5. WARNING: Be very careful using any ignition system with 'flashbulb' or electric match type igniters.
6. The ignition of rockets by other than electrical means is banned by both the NAR and Tripoli safety codes and should not be used.
7. What is thermalite fuse and how is it involved in igniting rocket motors?
8. How do you ignite second stage composite motors? Can I use a black powder booster for the first stage to ignite the second (as I do with multi-state A-D rockets)?
9. What is 'flash in the pan' ignition and for what is it useful in rocketry?
10. I would like to perfect a method for reliable ignition of clustered multi-stage rockets. Any suggestions or tips?
11. How do I cluster rocket motors? When igniting a cluster of rocket motors, should the igniters be wired in parallel or in series? Why?
12. I am new to rocketry. I was wondering whether anyone has tried using waterproof wicks instead of igniters to ignite a rocket engine.
13. The alligator clips on my launch system have worn out. What should I use to What should I use to replace them?

14. Other Ignition Tips:

Part 13: International Rocketry

1. Rocketry in Australia
    1. What rules apply to model rocketry in Australia?
    2. What are good sources of model rocketry kits/wg's/parts, etc?
    3. Are there any regular rocket contests, launches, clubs, etc?
    4. Info on amateur groups/activities (such as AusRoc) in the Australia.
2. Rocketry in Canada
    1. Are there any national organizations to which I can join in Canada? What services do they offer?
    2. What kinds of rockets (model and/or high power) are legal to fly in Canada?
    3. Are there any High Power launches at all in Canada?
    4. What kinds of rocket motors are available for purchase in Canada?
    5. Are there any Canadian mail order houses where I can purchase model rocket kits, motors and supplies?
3. Rocketry in the United Kingdom
    1. Is model rocketry legal in the UK?
    2. What size model rockets can be flown?
    3. What model rockets are available?
    4. What types of engines are available?
    5. Where can I buy model rockets?
    6. Are there any events/competitions?
    7. Are there any clubs?
    8. What are addresses of some of the shops that carry model rocketry?
    9. What are some of the rocket clubs in the U.K., and do they have any problems getting permission to fly their rockets?
4. Rocketry in South Africa
5. Rocketry in New Zealand
6. Rocketry in Germany
    1. German Explosives Law
    2. German Aviation Regulations
    3. What Rockets and Motors can I buy and use in Germany?
    4. Clustering and Staging
    5. Can I make my own rocket motors?
    6. Can I use rocket motors made for display fireworks?
    7. Importing Rockets, Parts and Motors
    8. Where can I launch my Rockets?
    9. Where can I launch rockets with bigger motors?
    10. What Insurance do I need?
    11. Addresses of Rocketry-related Clubs

Part 14: Amateur Rocketry

1. DISCLAIMER
2. How do I make my own rocket motors?
3. My primary interest is in amateur rocketry. Where can I find information about amateur rocketry?
4. Amateur rocketry on the Internet

5. Manufacturers, suppliers, publishers, and consultants